



NEWS FROM NOAA

NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION • US DEPARTMENT OF COMMERCE

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NOAA READJUSTS THE NATIONAL SPATIAL REFERENCE SYSTEM USING HIGH ACCURACY GPS DATA

Beginning in June 2005, the National Oceanic and Atmospheric Administration will perform a general readjustment of the horizontal position and ellipsoidal heights in the National Spatial Reference System (NSRS) using high accuracy global positioning system (GPS) data. The NSRS is a consistent national coordinate system that specifies latitude, longitude, height, scale and gravity throughout the nation. This data provides the foundation for transportation, communication, mapping, charting and a multitude of scientific and engineering applications. Using GPS data, the readjustment will improve accuracy and consistency of the NSRS and provide a local and network accuracy measure for each coordinate.

Managed by NOAA's National Ocean Service's National Geodetic Survey (NGS), the NSRS encompasses a network of permanently marked control points; a nationwide array of continuously operating Global Positioning System (GPS) reference stations; up-to-date national shoreline data and a set of accurate models describing geophysical processes that affect spatial measurements such as plate velocities during an earthquake. NSRS control points aid in air navigation; provide data for coastal maps; and assist state and local highway planners with road construction.

"The readjustment is a part of NOAA's continuing effort to provide accurate and reliable navigational products and services," said retired Navy Vice Admiral Conrad C. Lautenbacher, Jr., Ph.D., under secretary of commerce for oceans and atmosphere and NOAA administrator. "The National Spatial Reference System is critical to supporting the nation's commerce with information for safe, efficient and environmentally sound transportation."

The readjustment of NSRS will provide surveyors with a highly accurate, consistent set of coordinates with specifically defined point accuracies. Airports and harbors rely on NSRS data for a variety of navigational needs including identifying obstructions and hazards in the air and under water. NSRS data is also critical in identifying subsidence and flood plane areas that are critical for identifying safe flood evacuation routes and other hazards.

The general readjustment is part of NOAA's efforts to create a Global Earth Observation System of Systems (GOESS). GOESS will link existing technology in space, the ocean, and on land in order to provide a framework for systems, data and vital information so scientists and policy makers in different countries can design, implement and operate compatible observation systems.

Scheduled for completion in February 2007, the readjustment will incorporate vast improvements in observational accuracies furnished by GPS derived observations, which were not available for earlier computations of coordinate positions. In addition, the widespread use of GPS receivers has led to substantial growth of the NSRS since the last general readjustment in 1986. For several years, both NGS and local surveyors have obtained high-accuracy data using GPS for inclusion in the NSRS. The nationwide readjustment will incorporate these high-accuracy observations and furnish local and network accuracies for each control point.

NGS's height modernization program, which provides accurate height information by integrating GPS technology with existing survey techniques, will also benefit from the readjustment. The readjustment will incorporate advances in GPS surveying that have led to substantial accuracy improvements in height computations. Geographic Information Systems (GIS), which include environmental monitoring and modeling among many other uses, will also benefit from the accuracy of the readjustment.

The NOAA National Ocean Service, which includes NGS, is dedicated to exploring, understanding, conserving and restoring the nation's coasts and oceans. The NOAA National Ocean Service balances environmental protection with economic prosperity in fulfilling its mission of promoting safe navigation, supporting coastal communities, sustaining coastal habitats and mitigating coastal hazards.

NOAA, an agency of the U.S. Department of Commerce, is dedicated to enhancing economic security and national safety through the prediction and research of weather and climate-related events and providing environmental stewardship of the nation's coastal and marine resources.

On the Web:

NOAA: <http://www.noaa.gov>

NOAA's Ocean Service: <http://oceanservice.noaa.gov>

National Geodetic Survey: <http://ngs.noaa.gov/>